M.R.O. 1—77,006—8-6-37.

(1) Number of pages_____

(2) Date of repair_____

(3) Initials of the Referencer_____

MADRAS RECORD OFFICE.

Government of Madras.

Public works **DEPARTMENT.**

G.O. No. 519 Press ~~Mis.~~

280-81

Dated 14 · 2 1870 .

Not to be folded or roughly handled

No. 280. Read the following letter from Colonel J. CARPENDALE, R.E., Acting Consulting Engineer for Irrigation and Canal Company, to the Secretary to Government, Public Works Department, dated Madras, 20th December 1869, No. 117 :—

I HAVE the honour to forward a letter from the Agent and Manager, Madras Irrigation and Canal Company, No. 413, dated 13th instant, submitting a revised estimate, amounting to Rupees 3,44,440, for the Adamapully Anicut on the Pennair and head-works.

2. The former sanctions were—

			RS.
By G. O., No. 2,394, dated 28th July 1868	...	...	3,00,000
Do ,, 3,056, ,, 28th Sept. ,,	...	...	500
		Total...	3,00,500

In his letter, No. 14, of 24th April 1869, the Consulting Engineer submitted a supplemental estimate, amounting to Rupees 33,600, which the Government returned with their Order, No. 1,645, of 19th May 1869, directing that, after due consideration to the remarks of the Consulting Engineer, the estimate, when revised to such an extent as might be found necessary, should be re-forwarded for sanction, and the general estimate now submitted is in supersession of all the former ones.

3. The total of former sanctions, as above, was Rupees 3,00,500
The total of the estimate now submitted ... ... ,, 3,44,440

Net increase, ,, 43,940

This increase is derived as follows :—

1. Wells				Rupees	8,194 increase.
2. Loose rubble and dressed stone ...				,,	17,573 ,,
3. Excavation				,,	3,375 ,,
4. Coping				,,	7,242 ,,
5. Clearing sand...				,,	2,007 ,,
6. Baling				,,	10,000 ,,
7. Under-sluice				,,	13,611 ,,
8. Head-sluice				,,	4,675 ,,
9. Flood-bank				,,	1,156 ,,
10. Stop-bank				,,	10,228 ,,
			Total increase...	,,	78,061

Item No. 1 is owing to the addition of a row of wells under the front wall of the anicut and to the increased depth of those in the rear wall, agreeably to paragraphs 5 and 6 of the Consulting Engineer's letter quoted above.

Nos. 2, 3, and 5 are for the increased quantity of loose rubble stone to form the bank and the groynes on the upper side of the anicut to protect it from scour, recommended in the Consulting Engineer's paragraph 5, and for the extended rough-stone apron proposed in his paragraph 9.

No. 4 is simply the separation of the coping from the rest of the masonry, the estimated cost of the latter item being proportionably reduced from Rupees 3-12-0 to Rupees 3 a cubic yard.

No. 6 is owing to the cost of baling and cofferdams being taken out of contingencies, that item being accordingly reduced from ten to five per cent.

No. 7 is on account of increased cost of excavating in rock and kunkur for the under-sluice, for which eight annas a cubic yard had been provided for stone that is now estimated to cost 14 annas, and kunkur, which to a considerable extent is found to exist in lieu of mud that was calculated on, is found to cost three annas and six pies a cubic yard.

No. 8.—A similar explanation appertains to No. 8. Stone that it was hoped could be quarried for four annas a cubic yard in the channel at head-sluice is now estimated at 12 annas, and, having recently inspected the work, I can concur in the necessity for the increased rates in Items Nos. 7 and 8.

No. 9 is to provide a layer of shingling on the earthen flood-bank; and

No. 10, which includes some irrigation culverts in the bank, is for raising the stop-bank on the south side half a yard higher than had been intended, as, from the latest inquiries, it appeared that the height which had been proposed was so much short of what safety demanded.

4. From the above total increase of ... ... Rupees 78,061

is to be deducted a decrease of Rupees 34,121 on account of the reduction in the rate of rubble masonry by the coping forming a separate item, and by contingencies being reduced from ten to five per cent. by reason of baling and cofferdams being separately provided for	,,	34,121
Leaving the net increase	,,	43,940
For which sanction is now solicited, bringing the total estimated cost of the anicut and head-works up to	,,	3,44,440

5. I beg, also, to submit the Agent's letter, No. 398, dated 3rd December 1869, representing that the large amount of work, required by Government "to be added "to the Pennair Anicut, makes it doubtful whether the whole of the work can be "completed in eighteen months," and expressing the opinion "that, even if possible, "it would not be economical to finish the rubble masonry within the time named;" and, by desire of the Board in London, "he asks that the Government will permit "the execution of the whole of the work of the anicut and apron at such a rate of "progress as may be best both for solidity and economy in the opinion of the "Chief Engineer and Deputy Chief Engineer."

6. I recently had an opportunity of talking over this matter with Mr. Gordon, the Deputy Chief Engineer, who is very decided in the opinion that it will not be possible to deposit all the rough-stone apron by June 1871, although he and the Executive Engineer of the Division are prepared to make every exertion to do so; and I am inclined to think that it is not desirable to hasten this work too much, and that, if the concession on the part of Government will not invalidate the contract, the terms of which it might be necessary on other grounds to enforce, it would be advisable to comply with the request.

7. The following documents accompany:—

One letter from the Agent, No. 398, dated 3rd December 1869.
,, do. from the Chief and Deputy Chief Engineer with the Agent's covering letter, No. 413, dated 13th December 1869.
,, plan of Anicut north wing wall and section.
,, do. of section and cross section of south stop-bank.
,, do. of new section of anicut.
,, drawing of irrigation and drainage culvert on south stop-bank.
,, longitudinal section.
,, revised detailed estimate.
,, abstract do.
,, comparative statement.

From the Agent and Manager of the Madras Irrigation and Canal Company, to the Consulting Engineer, dated Madras, 3rd December 1869, No. 398.

Mr. Gordon, the Deputy Chief Engineer, having expressed an opinion that the large amount of work, required by Government to be added to the Pennair Anicut, makes it somewhat doubtful whether the whole of the work can be completed in eighteen months, I am directed by the Board to represent through you to the Government that it would not be economical, even if possible, to finish the rubble apron within the time named, but that it would be obviously more economical as well as more efficient to extend over several years the depositing of rubble for the formation of the apron, so as to allow the stone to work its own way down, instead of needing a bed to be excavated for it.

2. This, I believe, is the system invariably adopted in the construction of aprons of this description, and I have, therefore, the honour to request that you will be pleased to submit this question to the Government, and solicit their concurrence in the views of the Board, and move them to permit the execution of the whole work—the anicut and apron—at such a rate of progress as may be deemed best, both for solidity and economy, by the Chief and Deputy Chief Engineers.

From the Agent and Manager of the Madras Irrigation and Canal Company, to the Consulting Engineer, dated Madras, 13th December 1869, No. 413.

I have the honour to forward for sanction the undermentioned plans and estimates of the Pennair Anicut, 10th Section, with a copy of the Chief Engineer's letter, No. 1,092, of 8th December 1869, and enclosure:—

One plan of Anicut north wing wall and section.
,, plan, section, and crosssection of south stop-bank.
,, drawing of irrigation and drainage culvert in south stop-bank.
,, revised detailed estimate.
,, abstract do.
,, comparative statement.

From the Chief Engineer, to the Agent and Manager, Madras Irrigation and Canal Company, dated Kurnool, 8th December 1869, No. 1,092.

Pennair Anicut Estimates.

The design of the anicut sanctioned in G. O., No. 2,394, of 28th July 1868, was modified by G. O., No. 1,645, of 19th May 1869, in which some important alterations of the original design were ordered, as described in the letter of the Consulting Engineer printed with that order to the paragraphs of which I hereinafter refer.

Para. 5.—The addition of a row of walls under the front wall and increased length of those in the rear wall is estimated to cost Rupees 8,000, and is inserted.

Para. 9.—The alteration ordered to the rubble apron in rear seems not to reduce the quantity of stone but to leave it as before, *viz.*, 43⅓ square yards in section. The clearing away of the sand and spoil over the additional breadth* of 45 feet is included in the present estimate.

* Original breadth of dry rubble apron	...	60 feet.
Breadth of that now ordered	...	105 ,,
Increase...		45 ,,

Para. 5.—The groynes in front of the anicut also require sand and spoil to be removed. The cost of these last two items is estimated at Rupees 17,000 for the stone alone. The increase in rubble deposit is 8,432 cubic yards or 35 per cent., of which seven per cent. is due to the additional length of the portion of the anicut on wells. This increase and the necessity of laying an additional line of rails from which to deposit the rubble in front of the anicut will render it very difficult to finish the anicut in two seasons. The increase of excavation in sand including the drain, which is a mile long instead of half a mile as estimated, is above 50,000† cubic yards, and is estimated to require an addition of Rupees 6,000 to the estimate.

† 1,61,837	
1,10,493	
51,344	

Besides this addition of Rupees 31,000 required by the above modifications, I have the honour to ask for sanction for additional expenditure of nearly Rupees 11,000 as follows :—

The rubble masonry in the anicut is increased by 2,349‡ cubic yards, which causes an addition of Rupees 7,047 to the estimate.

‡ 14,544	
12,195	
2,349	

The stop-bank on the south side appears from the latest inquiries to be hardly high enough by half a yard. Safety is of such importance that I have included the cost of making up the bank to the proposed height of six feet above this raised water-level. This adds nearly 1,10,000 cubic yards including the road ramps and a detour to avoid some cultivation ; and with some shingling to a part of the bank and Rupees 9,500 to the cost ; also Rupees 1,253-8-0 is inserted for culverts.

For convenience and economy I have separated the item of coping of the walls of the anicut founded on wells from that of the rubble masonry, which I expect to do for Rupees 3 a cubic yard, leaving 12 annas a cubic yard to pay for coping. This would leave (on 14,544 cubic yards) Rupees 10,908 for the coping, for which, however, I have inserted Rupees 7,238 as sufficient.

Similarly I have taken the expense of baling and cofferdam out of "Contingencies," and entered it separately at Rupees 10,000.

The length of the anicut from bank to bank of the river seems to have been over-measured in the last estimate. The present one agrees more with the original.—See Mr. Gordon's letter enclosed, No. 203, of 29th November 1869.

From G. GORDON, Esq., Deputy Chief Engineer, to the Assistant to the Chief Engineer, Kurnool, dated Cuddapah, 29th November 1869, No. 203.

YOUR No. 160 of 24th instant.

I was under the impression that I had replied to paragraph 1 of your No. 108 to the effect that the lengths given in the estimate are correct as measured, and that the former estimate which gives different lengths is consequently wrong, but I cannot account for the latter fact.

No. 281. ORDER THEREON, 14th February 1870, No. 519.

IRRIGATION, No. 15.

CONSIDERABLE difficulty having been experienced in laying the foundations of a portion of the anicut across the Pennair at Adamapully at the levels provided for in the sanctioned design, His

Excellency the Governor in Council, on the recommendation of the Consulting Engineer, approved of certain alterations of those levels and directed the preparation of a revised estimate.

2. In pursuance of these instructions the Acting Consulting Engineer submits an estimate of Rupees 3,44,440, exhibiting a net excess of Rupees 43,940 over the total of previous sanctions, which aggregate Rupees 3,00,500.

3. Colonel Carpendale explains the causes of excess under each of the various items over which it is distributed, and requests attention to the letter from the Agent and Manager, in which that officer, expressing his doubts as to whether it will be practicable to carry out to completion all the works provided for in the revised estimate before the expiration of the term of the Company's contract in June 1871, gives it as his opinion that it would be expedient to permit their execution to be proceeded with at such a rate of progress as the Company's officers may deem compatible with efficiency and economy. Colonel Carpendale concurs in the desirability of this arrangement if the concession will not involve a compromise on the part of Government.

4. His Excellency the Governor in Council sanctions the revised estimate, but, seeing that it simply provides for the construction, in a manner to ensure stability, of one of the works included in the general undertaking which the Company have contracted to carry out within a fixed period of time, His Excellency is not prepared to sanction any measures that might have for their effect the postponement of the completion of that undertaking beyond the specified date.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

To the Consulting Engineer for the Madras Irrigation and Canal Company.
,, Manager for do. do.

Exd. J. Wright.

Consulting Engineer's Office
Irrigation & Canal Company
Madras, 20th May 1869.

No. 117.

From,

Colonel, Carpendale R.E.
Consulting Engr. for I. & C. Co.

To,

The Secretary to Government
Department of Pub. Works.—

Sir,

I have the honor to forward a letter from the Agent and Manager Madras Irrigation and Canal Company No. 1113 - 13th instant submitting a revised estimate amounting to Rupees 3,44,450 - "-" for the Ordinapully Anicut on the Pennair and head-work Rs.—

2. The former sanctions were:

By G.O. No. 2394 - 28 July 1868 — Rs: 3,00,000
— " — G.O. No. 3056 - 28 Sept. 1868 — " — 500
Total Rs: 300500

In his letter No. 14 of 24th April 1869 the Consulting Engineer submitted a supplemental estimate amounting to Rupees 33,600, which the Government returned with their order No. 1645 of 19th May 1869 directing that after due consideration to the remarks of the Consulting Engineer, the estimate when revised to such an extent as might be found necessary should be re-forwarded for sanction — and the General

Estimate

on account of the reduction in the rate of rubble masonry by the coping forming a separate item, and by Contingencies being reduced from ten to five percent by reason of balin and cofferdams being separately provided for ——— 34121

leaving the nett increase Rupees — 43940

for which sanction is now solicited,

bringing the total estimated cost of the Anicut and headworks up to Rupees-344440-

5. I beg also to submit the Agts' letter No. 398- 3rd Decr 1869 representing "that the large "amount of work required by Government to be "added to the Perniar Anicut makes it doubtful "whether the whole of the work can be completed "in eighteen months," and expressing the opinion "that "even if possible, it would not be economical to "finish the rubble masonry within the time named" and by desire of the Board in London "he asks that "the Government will permit the execution of the "whole of the work of the Anicut and apron at such "a rate of progress as may be best both for solidity "and economy in the opinion of the Chief Engineer and "Deputy Chief Engineer."

6. I recently had an opportunity of talking over this matter with Mr Gordon the Deputy Chief Engineer who is very decided in the opinion that it will not be possible to deposit all the rough stone apron by June 1871 although he and the Executive Engineer of the Division are prepared to make every exertion to do so, and I am inclined to think that it is not desirable that this work too much, and that if the concession on the part of Government will not invalidate the Contract, the terms of which it might be necessary on other grounds to enforce, it would be advisable to comply with the request.

7. The following documents accompany.—

1 Letter from the Agt No. 398- 3rd Decr/69
1 " " the Chief Engr to the Chief Secy with the Agts
covering letter No. 413- 13th Decr/69-
1 Plan of Anicut north wing wall and Section-
1 Do of Section & Cross Section of South stop-bank-
1 Do of new Section of Anicut-
1 Drawing of Irrigation & drainage culvert on South stop bank
1 Longitudinal Section-
1 Revised detailed Estimate-
1 Abstract Do
1 Comparative Statement Do

I have the honor to be,
Sir,
Your most obedient servant,
J Goldingham Colt R.E.
Engineer for the Company.

13C 10

Public Works Department

No 879 519

Proceedings of the Madras Government

Under date the 14th July 1870

Read the following

From The Ag Cons. Engr for S.K.Co / H.E. No 1171 / 20th Dec / 69

Considerable difficulty having been experienced in laying the foundations of a portion of the Anicut across the Pennair at Adamapully at the levels provided for in the sanctioned design, His Excellency the Governor in Council, on the recommendation of the Consg Engineer, approved of certain alterations of those levels and directed the preparation of a revised estimate.

In pursuance of these instructions the Acting Consg Engineer submits an estimate of Rs. 3,44,440, exhibiting an excess of Rs 43,940 over

the

N.

A.

W.G.

Rec'd 20th Jan 70

Rec'd 19th Jan 70

Rec'd 19th January 1870

Submitted for Consideration

Lieut Colonel Commanding R.E.

Public Works Department &c

Adamapully & Cuddapah

Jan 1870

No 879 - 14th July 1870

Approved

C. 28 January 1870

the Estimates of previous Exercises which aggregate $2,000,000.

Col. Carpendale explains the causes of excess under each of the various items over which it is distributed, and requests attention to the letter from the Agent and Manager, in which that officer, expressing his doubts as to whether it will be practicable to carry out to completion all the works provided for in the revised Estimate before the expiration of the term of the Company's Contract in June 1911 gives it as his opinion that it would be expedient to permit their Executive to be proceeded with at such a rate of progress as the Company's officers may deem compatible with efficiency and economy. Col. Carpendale concurs in the desirability of this arrangement if the Concession will not involve a Compromise on the part of Government.

His Excellency the Governor in Council sanctions the revised Estimate, but seeing that it simply provides for the Construction, in a manner to ensure stability, of one of the works included in the general undertaking which the Company have contracted to carry out within a fixed period of time, His Excellency is not prepared to sanction any measures that might have for their effect the postponement of the completion of that undertaking

he-

beyond the specified date.

(1)

To
The Com. Engr. for Stn. Cantt.
& Ramgarh for Dr
& Bramgo. for Dr

Desp. 17/2/70.

C. 28 Jan 1870 R 3 per

O. W. & St Engd 17th Aug
Dr 17 of 1870

Enc 231

Govt. of [1870] Madras.

PUBLIC WORKS.

To The Consulting Engineer for
the Madras Irrigation
& Canal Coy.

Dated

Read.

C. O. 14 July 1871, No. 579

Nos. 280-281

Adamapully Anicut (Mr. Dobbs)

Revised Estimate of £ 44,440 for the Adamapully Anicut on the Pennair, sanctioned with Enclosures